ISSUE DOCUMENTATION – RTCA SC-186

ASA / ASAS

Tracking Information (committee secretary only)	
Change Issue Number	15
Submission Date	10 September 2004
Status (open/closed/deferred)	Pending
Last Action Date	

Short Title for Change Issue:	Flight Crew ON/OFF Control of the ADS-B Out Function

Topic:	x	ASA	x	High-level	x	ASAS	x	STP	x	ASSAP	x	CDTI

Document Reference: n/a		Originator Information:	
Entire document (y/n)		Name	Michael Castle (on behalf of WG4)
Section number(s)		Phone	(443) 778-4319
Paragraph number(s)		E-mail	Michael.castle@jhuapl.edu
Table/Figure number(s)		Other	

Proposed Rationale for Consideration (originator should check all that apply):	
	Item needed to coordinate with other documents
X	ASA MASPS
X	1090 MHz Link MOPS
X	UAT Link MOPS
	TIS-B MASPS
	Previously written CDTI MOPS
	Other (include document title):
	Item needed for harmonization with international requirements
X	Item identified during recent ADS-B development activities and operational evaluations
	MOPS clarifications and correction item
	Validation/modification of questioned MOPS requirement item
	Military use provision item
X	New requirement item

Nature of Issue:		Editorial		Clarity	X	Performance	X	Functional

Issue Description (attach additional sheets if necessary):

This issue was raised during the SC-186 Working Group 4 (WG4) meeting on 22 July 2004. The question was asked in a joint meeting of WG4:

"Does the flight crew need ON/OFF control of the ADS-B 'out' function?"

'ADS-B out' in this context is understood to mean the set of functions necessary for transmitting ADS-B messages.

Originator's proposed resolution if any (attach additional sheets if necessary):

Currently there are no applications (ground or airborne) that require the system to be turned "off", but there may be design issues that drive the requirement for an "on/off" switch. If there is no "ADS-B out" on/off switch, the flightcrew may pull circuit breakers to turn the system off. This is an unacceptable way to turn off the system. In addition, ATC may find a need for pilots to turn off their system. For example, ATC may request that a pilot turn off their ADS-B out system (e.g. to check IDENT or to reduce clutter on their display.) Finally, several implementation issues that need more development such

as security, anonymity, and operational considerations may have a significant impact on this issue.

Proposed resolution:
The initial position of WG4 is to make an 'ADS-B out' on/off switch that is accessible to the flightcrew **optional**. Currently there is not enough information to decide conclusively if the system needs this capability. WG4 must decide how the optional switch will be implemented and conduct studies that determine if a switch is actually required.

Implementation issues include:

1. Turning a transponder switch will turn off ADS-B out for 1090 MHz Extended Squitter datalink systems. This capability to turn off ADS-B transmissions should be accounted for in the WG4 requirements.
2. Can 1090ES installations use the transponder switch for this on/off capability?
3. Does it need to be independent for ADS-B out only purposes?
4. Should it be software loadable, customer option, etc..,?

Suggested Actions :

1. Conduct studies on security, anonymity, operational, and other considerations to verify that the "on/off" switch is not required.
2. Poll other interest groups including FAA Spectrum office, the RTCA/EUROCAE Requirements Focus group (RFG), ATC, and possibly other stakeholders about their position on this topic.

Comments from Rich Jennings (FAA) on 24 September 2004:

Para 4.1.1.1 of RTCA DO-282 (UAT MOPS), addresses a system on/off switch. It is shown as optional, however, a means to at least stop transmission at the request of ATC should be considered. With that in mind, 4.1.4 says a means SHALL be provided for the flight crew to select "standby" mode in which UAT transmissions are inhibited. Note, that this is not a TSO mandate (i.e. it's not in Section 2 of the MOPS), but is a good design practice, and don't know of any manufacturer that wouldn't include a means to suppress the UAT ADS-B transmission (I'm sure the same applies to 1090 MHz ADS-B).

In talking to Garmin AT, the Capstone GDL-90 UAT box does have a means to put the UAT Transmission into "Standby".

Also, there is no know security reason, at this time, to not allow the pilot to put the UAT transmission into "standby"

Editorial note (Castle): DO-260A (1090ES MOPS) has similar content to that mentioned above for DO-282 regarding on/off switch options, link control, and standby operations and functional requirements in Sections 4.4.1, 4.4.5, & 4.4.6.